

Appl. No. 10/734,928
Amndt. Dated 07/11/2005
Reply to Office Action of 04/27/2005

REMARKS

This is in response to the Office Action mailed 02/04/2005. In the Office Action, (i) claims 23-37, 47, 49-50, and 53-54 were rejected under 35 USC 102(e); and (ii) claims 38-46, and 51-52 were rejected under 35 USC 103(a).

Reconsideration of the claim rejections in view of the amendments and remarks made herein is respectfully requested.

Claims 23-47 and 49-54 were previously pending. Claims 23, 29, 33, and 41 have been amended by this response. Claims 1-22 and 48 were previously cancelled without prejudice. Claims 38 and 44 have now been cancelled without prejudice. No new claim has been added. Accordingly, claims 23-37, 39-43, 45-47, and 49-54 remain pending in this application. Of those pending, claims 23, 29, 33, and 47 are independent claims.

Applicant respectfully submits that no new matter has been added by this response.

I) Claim Amendments

Applicant has amended independent claims 23, 29, and 33 and dependent claim 41.

Limitations from dependent claims 38, 41, and 44 have been added into independent claims 23, 29 and 33, respectively.

Applicant has amended independent claims 23, 29, and 33 to clarify Applicant's claimed invention to include a **poly-crystalline portion** over or on an oxide portion of the substrate. (emphasis added). [Claim 23, lines 8-9; Claim 29, lines 7-8; Claim 33, lines 10-11]. The recitation of "oxide

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layer" was changed to more properly recite an "oxide portion" of the substrate over which the poly-crystalline portion is found.

As substantially all the limitations of dependent claims 38 and 44 have been added into independent claims 23 and 33, dependent claims 38 and 44 have been cancelled without prejudice.

Dependent claim 41 was amended to delete the limitations added into independent claim 29 to avoid redundant limitations.

II. Claim Rejections Under 35 USC 102(e)

On page 2 of the Office Action, claims 23-37, 47, 49, 50, 53, 54 were rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,492,237 issued to Kalnitsky et al. ("Kalnitsky"). Applicant respectfully traverses this rejection.

As discussed previously, Applicant has amended independent claims 23, 29, and 33 to clarify Applicant's claimed invention.

Regarding independent claims 23, 29, 33, and 47, the Office Action alleges that "Kalnitsky anticipates a bipolar transistor, comprising: in fig. 2D, a substrate having a collector region 204, the collector region being a collector terminal, where the electrons collect; a plurality of mono-crystalline layer with the lower portion of 206 being the first epitaxial layer and the upper portion of 206 being the second epitaxial layer, a first epitaxial silicon layer having a mono crystalline portion 206A, on a mono-crystalline portion of the substrate; an emitter stack 220 on the first epitaxial silicon layer, the emitter stack being an emitter terminal, where electrons are inputted into the device; a second epitaxial silicon layer 206B having a mono-

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crystalline portion on the mono-crystalline portion of the first epitaxial silicon layer, bottom portion of 206, located outside the emitter stack, wherein 206B does not contact 220; wherein a region of the first epitaxial silicon layer located under the emitter stack is an intrinsic base region 206A and a region of the second epitaxial silicon layer 206B on portions of the first epitaxial silicon layer located outside the emitter stack being a raised extrinsic base region; wherein the raised extrinsic base region has a thickness greater than a thickness of the intrinsic base region; and wherein the intrinsic base region and the raised extrinsic base region provide a base terminal of the bipolar transistor with lower resistivity, do extrinsic doping". [Office Action, page 2, line 19 to page 3, line 16]. Applicant respectfully disagrees.

Generally with regard to this claim rejection, Applicant respectfully submits that it is difficult to follow, as the independent claims have not been separately rejected. The Applicant has attempted to decipher the allegations raised in the Office Action as best it can. Applicant would greatly appreciate any further claim rejections being set forth more clearly.

Moreover with respect to independent claims 29 and 47, the Office Action initially alleges that in Kalnitsky, "the lower portion of 206 being the first epitaxial layer and the upper portion of 206 being the second epitaxial layer." [Office Action, page 3, lines 2-4]. The Office Action then seems to change and allege that Kalnitsky's reference no. 206B is "a second epitaxial silicon layer 206B having a mono crystalline portion" and Kalnitsky's reference no. 206A is "a first

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epitaxial layer having a mono crystalline portion 206A". [Office Action, page 3, lines 4 and 7]. Switching allegations of a claim limitation within a claim rejection, such as this, is unreasonable and an improper examination practice.

However, Kalnitsky only discloses a single base region 106, 206. Kalnitsky's "base region 106 may be formed of silicon or silicon-germanium or silicon-germanium-carbon, and is epitaxially grown and doped with p-doping material (e.g. boron)." [Kalnitsky, Col. 3, lines 48-51]. In Kalnitsky's Figure 2, "the semiconductor device 200 has undergone the same steps as exemplary device 100 as described with reference to FIGS. 1A-1E." [Kalnitsky, Col. 3, lines 48-51]. Thus, Kalnitsky's base region 206 is formed similarly to Kalnitsky's base region 106. That is, Kalnitsky does not disclose growing two or a plurality of epitaxial layers to form a base or base region as recited in independent claims 29 and 47.

Additionally, the Office Action admits that "Kalnitsky does not specify using polycrystalline regions in the base regions." [Office Action, page 6, line 12].

Independent claim 47 includes a limitation of a "plurality of epitaxial layers having a mono-crystalline portion over the mono-crystalline portion of the substrate and a **poly-crystalline portion over the oxide portion of the substrate**". (emphasis added) [Claim 47, lines 6-9].

Moreover as discussed previously, Applicant has amended independent claims 23, 29, and 33 to clarify Applicant's claimed invention to include a **poly-crystalline portion** over or on an oxide portion of the substrate. (emphasis added). [Claim 23, lines 8-9; Claim 29, lines 7-8, Claim 33, lines 10-11].

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Thus for the foregoing reasons, Applicant respectfully submits that independent claims 23, 29, 33, and 47 are not anticipated by Kalnitsky.

Rejected dependent claims 24-28 depend directly or indirectly from independent claim 23.

Rejected dependent claims 30-32 depend directly or indirectly from independent claim 29.

Rejected dependent claims 34-37 depend directly or indirectly from independent claim 33.

Rejected dependent claims 49-50 and 53-54 depend directly or indirectly from independent claim 47.

Applicant believes it has placed independent claims 23, 29, 33, and 47 in condition for allowance such that dependent claims depending respectively there-from with added limitations are also in condition for allowance.

Thus, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 102(e) rejection of claims 23-37, 47, 49-50, and 53-54-37 over Kalnitsky.

III. Claim Rejections Under 35 U.S.C. § 103(a)

On page 6 of the Office Action, claims 38-39, 41-42, 44-45, and 51 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Kalnitsky and US Pat. No. 5,587,327 issued to Konig et al. ("Konig"). [Office Action, page 6, lines 9-11]. Applicant respectfully traverses this rejection.

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On page 7 of the Office Action, claims 40, 43, 46, and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kalnitsky, Konig, and Wolf, V. I, pp. 399-400. [Office Action, page 7, lines 13-15]. Applicant respectfully traverses this rejection.

The limitations of dependent claims 38 and 44 have been added into independent claims 23 and 33. Accordingly dependent claims 38 and 44 have been cancelled and the rejection as to these claims is moot. The limitation of the first epitaxial layer having a polycrystalline portion has been added into independent claim 29.

As previously discussed, the Office Action admits that "Kalnitsky does not specify using polycrystalline regions in the base regions." [Office Action, page 6, line 12]. Independent claims 23, 29, and 33, as amended, and independent claim 47 now each recite a "polycrystalline portion". The Office Action combines Konig into Kalnitsky to allegedly make the claims with this limitation obvious under 35 USC 103(a).

However, Applicant respectfully submits that 35 USC § 103(c) excludes Kalnitsky from being used as a prior art reference under 35 USC § 103(a).

35 USC § 103(c), which became effective November 29, 1999, excludes references which may qualify as prior art under 35 USC § 102(e), (f), and (g) from being used as a prior art reference under 35 USC § 103(a). The text of 35 USC § 103(c) recites that "[s]ubject matter developed by another person, which qualifies as prior art under one or more of subsections (e), (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed

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invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." [see 35 USC §103(c), MPEP § 706.02(l), 8th Edition, Rev. 2, May 2004, Pg. 700-50].

The subject matter of Kalnitsky and the claimed present invention were, at the time the invention was made, owned by Maxim Integrated Products, Inc. ("Maxim") or subject to an obligation of assignment to Maxim. The patent cover page of Kalnitsky indicates an assignment to Maxim which is recorded at Reel No. 011556 and Frame No. 0862 in the U.S. Patent and Trademark Office. An assignment of the parent patent application (to which this divisional claims benefit) to Maxim was recorded at Reel No. 012787 and Frame No. 0072 in the U.S. Patent and Trademark Office.

Furthermore, Kalnitsky was filed on 02/21/2001 and issued on 12/10/2002. The above referenced divisional patent application claims the benefit of the parent patent application filed on 04/09/2002, prior to the issuance of Kalnitsky.

Therefore, Kalnitsky is not a valid prior art reference to use in a 35 USC 103(a) claim rejection.

For the foregoing reasons Kalnitsky cannot be combined with Konig, nor Konig and Wolf to make obvious Applicant's present invention as claimed in independent claims 23, 29, 33, 47 and rejected claims 38-39, 40, 41-42, 43, 44-45, 46, 51 and 52.

Thus, Applicant respectfully requests the withdrawal of these 35 USC § 103(a) rejections of claims 38-39, 40, 41-42, 43, 44-45, 46, 51 and 52 over the combination of Kalnitsky and Konig; and Kalnitsky, Konig, and Wolf.

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CONCLUSION

In view of the foregoing it is respectfully submitted that the claims are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance of the claims at an early date is solicited.

The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 557-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Please charge any shortage in fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 02-2666 and please credit any excess fees to such deposit account.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to the Patent and Trademark Office under 37 CFR §1.8 on: July 11, 2005 to Examiner William Brewster at (703) 872-9306.

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7/11/05

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